PROXIMITY SENSOR

1.FEATURES

Quick response, Long operation life, Reliable action, high anti-interference, and anti-shock, water-proof ability. It can be applied in measuring, Counting, Rpm measuring in mechanism, chemical, paper manufacture light industry, etc.

2.MODEL

□□□ — □ □ □ □

Model	
TK	Inductive
TC	Capacitive

Connector model	
Blank	No Connector
I	Straight Connector
L	Bend 90° Connector

Appearance	
S	Square
8	M8 column
12	M12 column
18	M18 column
22	M22 column
30	M30 column

Output mode	
N	NPN NO
NC	NPN NC
P	PNP NO
PC	PNP NC
X	DC 2-wire NO
XC	DC 2-wire NC
Y	AC 2-wire NO
YC	AC 2-wire NC

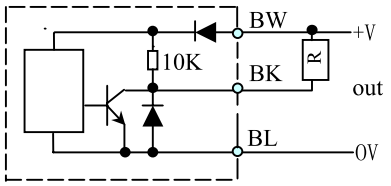
Sensing distance	
2	2mm
4	4mm
5	5mm
8	8mm
10	10mm
15	15mm
20	20mm
25	25mm

Output current	
A	50mA
B	100mA
C	200mA
D	300mA

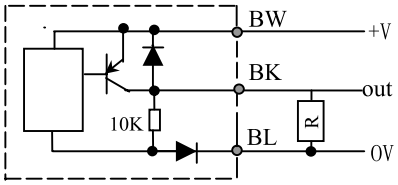
For example: TKI-12N4C means inductive proximity sensor with straight connector,12mm in Diameter,NPN NO,Sensing distance is 4mm,max output current is 200mA.

3.CONNECTION

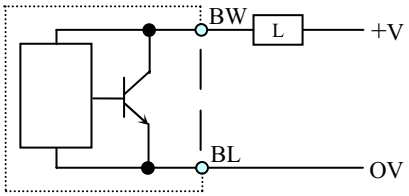
DC NPN



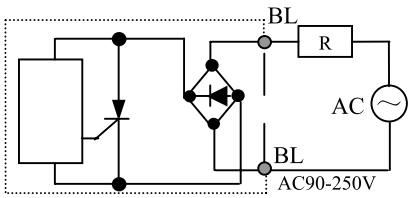
DC PNP



DC 2 wire



AC 2 wire



4.INSTALLATION DEMAND

If used in an area surrounded by metal or juxtaposed , Install the proximity Sensor as follows .
(Sn: Sensing distance)

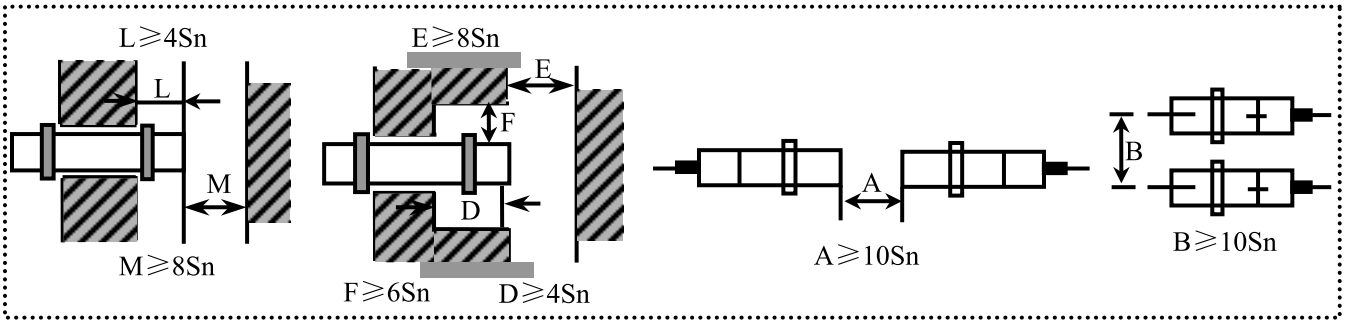


Figure 1

5.APPLICATION DIRECTION

■SENSING DISTANCE (TK SERIES INDUCTIVE PROXIMITY)

1.To set mounting distance equal to 80% sn.
2.Please set mounting distance equal to 50%sn,when sensor is applied to measured mounting frequency or operated in high speed circumstance.
3.Mounting distance varies with measuring object(iron, stainless steel, chrome nickel, copper and aluminum) . see figure(2)a

4.The relationship between mounting distance (y axis) and the size of object (x axis)

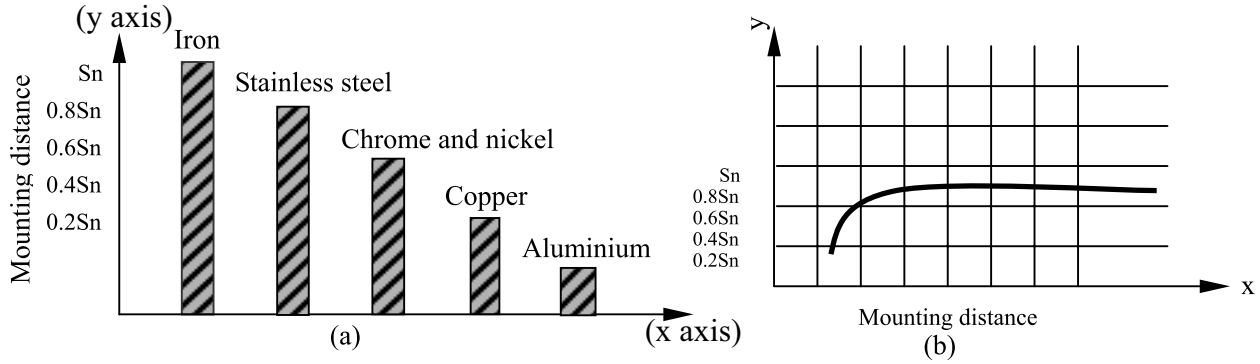


Figure 2

■ TK SERIES-CONNECTION AND PARALLEL CONNECTION

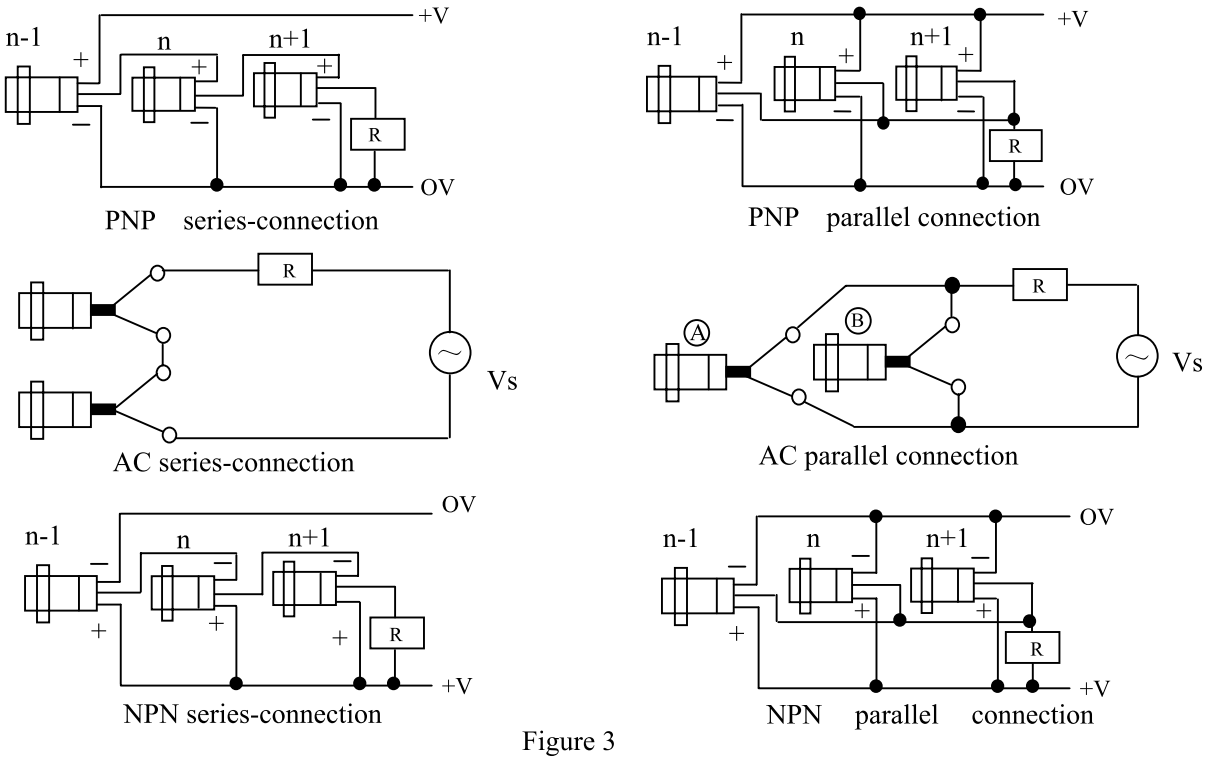


Figure 3

■ TC PROXIMITY SENSOR MOUNTING DISTANCE SETTING

① Proximity sensor can measure metal, plastic, glass, water, oil, etc.The mounting distance changes according to the objects,because their conductivity, size absorption constant are different, If metal connects with ground (GND),we can get the maximum mounting distance.

② Different objects (iron, milk, salt, sugar and grass) have different mounting distance (Figure 4)

(1) = IRON

(2) = MILK

(3) = SALT

(4) = GRANULATED SUGAR

(5) = GLASS

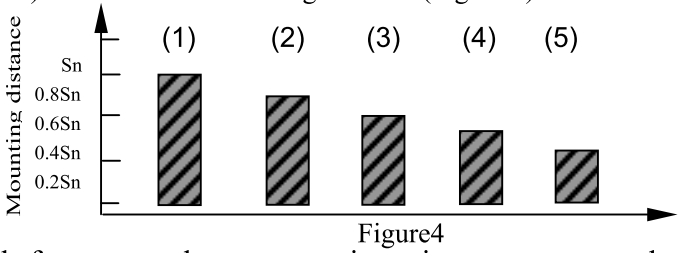


Figure4

③ Operating should be far away from high frequency electromagnetism circum-stance, such as high frequency welding machine, supersonic wave emittor.

④ The mounting distance of capacitive proximity sensors is adjustable. Before installation, the mounting distance must be adjusted. Do as follows:

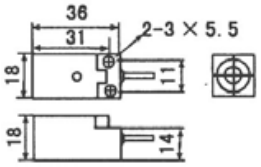
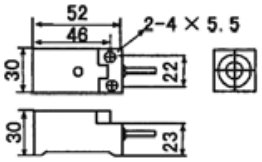
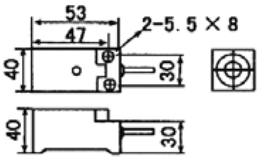
A) Rotating the adjustor clockwise, the sensing distance (Sn) increases. Otherwise, it decreases. The rotation number is about 10 rounds.

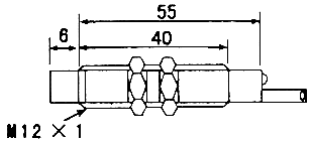
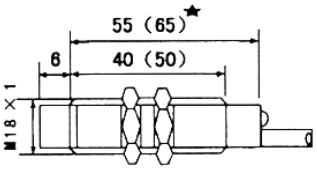
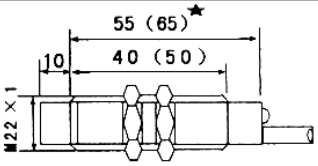
B) When no object, turn the adjustor clockwise until the light turns on.

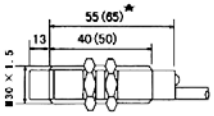
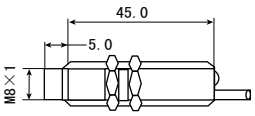
C) Closed to an object, turn the adjustor counterclockwise until the light turns off.

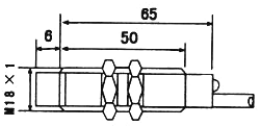
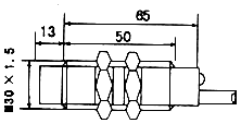
D) Finally, rotate the adjustor to let it stay at the position which is the middle of the position when the light is on and off.

■ Proximity sensor mounting dimension

Code		TK-S□□□		TK-S□□□			TK-S□□□		
Appearance & Size									
Output		DC		DC		AC	DC		AC
		NPN	PNP	NPN	PNP		NPN	PNP	
Mode	NO	TK-SN5C	TK-SP5C	TK-SN10C	TK-SP10C	TK-SY10D	TK-SN20C	TK-SP20C	TK-SY20D
	NC	TK-SNC5C	TK-SPC5C	TK-SNC10C	TK-SPC10C	TK-SYC10D	TK-SNC20C	TK-SPC20C	TK-SYC20D
Stipulated		5.0mm		10.0mm			20.0mm		
Sensing		0～4.0mm		0～8.0mm			0～16.0mm		
Power supply		DC 10～30V		DC 10～30V		AC 90～250V	DC 10～30V		AC 90～250V
Frequency		≤400HZ		≤200HZ		≤20HZ	≤100HZ		≤10HZ
Output supply		≤200mA		≤200mA		10～300 mA	≤200mA		10～300 mA

Code		TK□-12□□□		TK□-18□□□			TK□-22□□□		
Appearance & Size									
Output		DC		DC		AC	DC		AC
		NPN	PNP	NPN	PNP		NPN	PNP	
Mode	NO	TK(I、L)-12N2（4）C	TK（I、L）-12P2（4）C	TK（I、L）-18N5（8）C	TK（I、L）-18P5（8）C	TK-18Y5(8) D	TK（I、L）-22N10C	TK（I、L）-22P10C	TK-22Y10D
	NC	TK(I、L)-12NC2（4）C	TK（I、L）-12PC2（4）C	TK(I、L)-18NC5（8）C	TK（I、L）-18PC5（8）C	TK-18YC5（8）D	TK（I、L）-22NC10C	TK（I、L）-22PC10C	TK-22YC10D
Stipulated distance		2mm/4mm		5mm/8mm			10 mm		
Sensing distance		2mm：0～1.6 mm　4 mm：0～3.2 mm		5mm：0～4.0 mm　8 mm：0～6.4 mm			0～8.0 mm		
Power supply		DC 10～30V		DC 10～30V		AC 90～250V	DC 10～30V		AC 90～250V
Frequency		2 mm≤600HZ　4 mm≤400HZ		5 mm≤400HZ　8 mm≤200HZ		≤20HZ	≤200HZ		≤20HZ
Output supply		≤200 mA		≤200 mA		10～300 mA	≤200 mA		10～300 mA

Code		TK□-30□□□			TK -8□□□	
Appearance & Size						
Output		DC		AC	DC	
		NPN	PNP		NPN	PNP
Mode	NO	TK（I、L）-30N10（15）C	TK（I、L）-30P10（15）C	TK-30Y10（15）D	TK-8N2B	TK-8P2B
	NC	TK（I、L）-30NC10（15）C	TK（I、L）-30PC10（15）C	TK-30YC10（15）D	TK-8NC2B	TK-8PC2B
Stipulated distance		10.0mm/15.0 mm			2mm	
Sensing distance		10 mm：0～8.0 mm　15 mm：0～12.0 mm			1.6mm	
Power supply		DC 10～30V		AC 90～250V	DC10～30V	
Frequency		≤200HZ		≤20HZ	≤600HZ	
Output supply		≤200 mA		10～300 mA	≤100mA	

Code		TC-18□□□			TC-30□□□		
Appearance & Size							
Output		DC		AC	DC		AC
		NPN	PNP		NPN	PNP	
Mode	NO	TC-18N8C	TC-18P8C	TC-18Y8C	TC-30N15C	TC-30P15C	TC-30Y15C
	NC	TC-18NC8C	TC-18PC8C	TC-18YC8C	TC-30NC15C	TC-30PC15C	TC-30YC15C
Stipulated distance		8 mm			15 mm		
Sensing distance		0 ～ 6.4 mm			0 ～ 12 mm		
Power supply		DC 12～30V		AC 150～250V	DC 12 ～30V		AC 150 ～ 250V
Frequency		≤50HZ		≤10HZ	≤50HZ		≤10HZ
Output supply		≤200 mA		10～200 mA	≤200 mA		10～200 mA

■ CAUTIONS

1. DC power connects insulation transformer, Not self-couple transformer.
2.Use the shielded wire in case of damage and vibration, see figure 5.

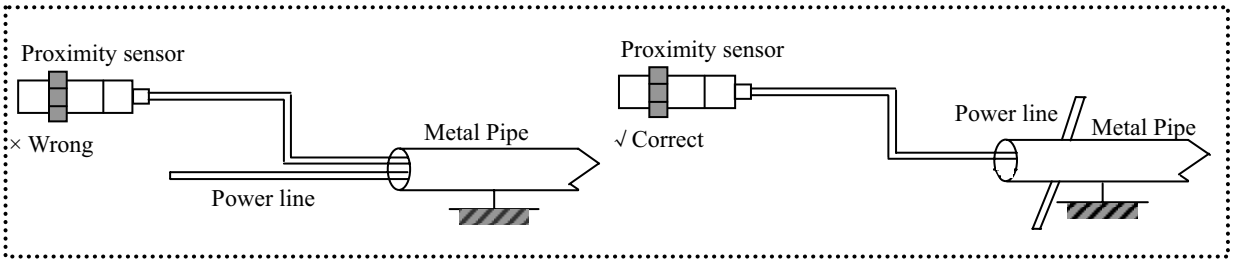


Figure 5

3.AC series proximity sensor, sensor must connect with load, otherwise sensor will be damaged.

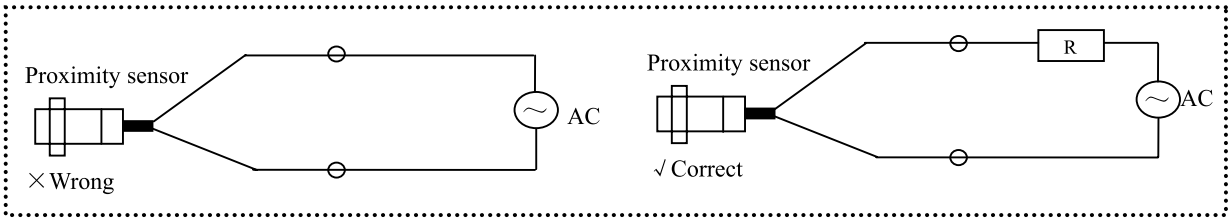


Figure 6

4.Connection wire should be shorter than 200m.in case of residual voltage is too great.

5. If the number of serial connect sensor (AC) less than three, connect as Figure 7, otherwise, connect as Figure 8.

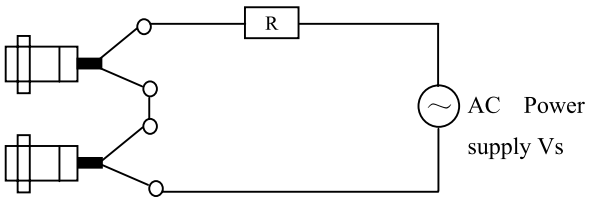


Figure 7

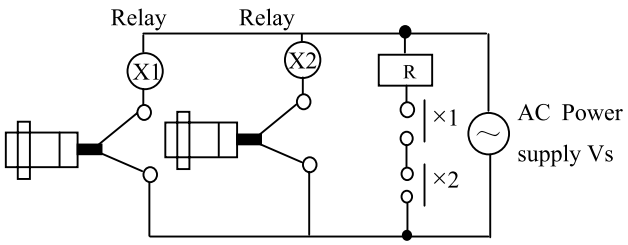


Figure8

6.Sensor A parallel connects with sensor B, if object is approaching A, sensor A operates,the voltage between sensor A and sensor B is almost 10V. At this time, sensor B can't operate because voltage is too low. Only when sensor A does not operate, sensor B can operate. So if the proximity sensors are connected parallel, connect as Figure 9 (for AC proximity sensor).

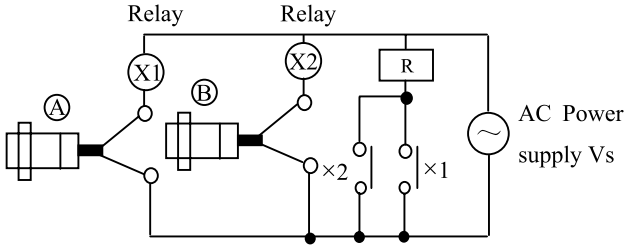


Figure 9